

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-10 (canceled).

Claim 11 (new): A composite material vibrator comprising:

a vibrating component that is composed of a material having a first acoustic impedance Z_1 and that defines a vibration source;

a reflective layer that is composed of a cured product of a resin composition including at least a curing agent, a silicone compound, and a curable resin that is curable by heat or light, the cured product having a second acoustic impedance Z_2 that is lower than the first acoustic impedance Z_1 , the reflective layer being connected to the vibrating component; and

a holding component that is composed of a material having a third acoustic impedance Z_3 that is higher than the second acoustic impedance Z_2 , the holding component being connected to surfaces of the reflective layer, the surface being opposite to the surface connected to the vibrating component; wherein

vibration propagated from the vibrating component to the reflective layer is reflected at an interface between the reflective layer and the holding component.

Claim 12 (new): The composite material vibrator according to claim 11, wherein the curable resin is an epoxy resin.

Claim 13 (new): The composite material vibrator according to claim 11, wherein the silicone compound is included in the resin composition in an amount of about 6 percent by weight to about 60 percent by weight.

Claim 14 (new): The composite material vibrator according to claim 11, wherein the silicone compound is a silicone resin powder.

Claim 15 (new): The composite material vibrator according to claim 11, wherein the silicone compound is a silicone rubber powder coated with a polyorganosilsesquioxane cured product.

Claim 16 (new): The composite material vibrator according to claim 11, wherein the sound velocity in the reflective layer at 5 MHz is about 2,600 m/s or less and the damping coefficient of the reflective layer at 5 MHz is about 3.5 dB/mm or less.

Claim 17 (new): The composite material vibrator according to claim 11, wherein the vibrating component is a piezoelectric vibrating element.

Claim 18 (new): A method for producing a composite material vibrator, comprising the steps of:

providing a vibrating component that defines a vibration source;

providing a holding component;

preparing an uncured resin composition containing at least a curing agent, a silicone compound, and a curable resin that is curable by heat or light;

laminating the vibrating component and the holding component with the uncured resin composition; and

curing the uncured resin composition to form a reflective layer that is connected to the vibrating component and the holding component; wherein

the vibrating component is formed of a material having a first acoustic impedance Z_1 , the cured resin composition defining the reflective layer has a second acoustic impedance Z_2 that is lower than the first acoustic impedance Z_1 , and the holding component is formed of a material having a third acoustic impedance Z_3 that is higher than the second acoustic impedance Z_2 ; and

vibration propagated from the vibrating component to the reflective layer is reflected at an interface between the reflective layer and the holding component.

Claim 19 (new) The method for producing the composite material vibrator according to claim 18, wherein the curing is performed by heating.

Claim 20 (new): The method for producing the composite material vibrator according to claim 18, wherein the curable resin is an epoxy resin.

Claim 21 (new): The method for producing the composite material vibrator according to claim 18, wherein the silicone compound is included in the resin composition in an amount of about 6 percent by weight to about 60 percent by weight.

Claim 22 (new): The method for producing the composite material vibrator according to claim 18, wherein the silicone compound is a silicone resin powder.

Claim 23 (new): The method for producing the composite material vibrator according to claim 18, wherein the silicone compound is a silicone rubber powder coated with a polyorganosilsesquioxane cured product.

Claim 24 (new): The method for producing the composite material vibrator according to claim 18, wherein the sound velocity in the reflective layer at 5 MHz is about 2,600 m/s or less and the damping coefficient of the reflective layer at 5 MHz is about 3.5 dB/mm or less.

Claim 25 (new): The method for producing the composite material vibrator according to claim 18, wherein the vibrating component is a piezoelectric vibrating element.

Claim 26 (new): A method for producing a composite material vibrator, comprising the steps of:

- providing a vibrating component that defines a vibration source;
 - providing a holding component;
 - preparing a resin sheet containing at least a curable resin, a curing agent, and a silicone compound;
 - disposing the resin sheet on the vibrating component and the holding component; and
 - curing the resin sheet to form a reflective layer that is connected to the vibrating component and the holding component; wherein
- the vibrating component is formed of a material having a first acoustic impedance Z_1 , the resin sheet defining the reflective layer has a second acoustic impedance Z_2 that

is lower than the first acoustic impedance Z_1 , and the holding component is formed of a material having a third acoustic impedance Z_3 that is higher than the second acoustic impedance Z_2 ; and

vibration propagated from the vibrating component to the reflective layer is reflected at an interface between the reflective layer and the holding component.

Claim 27 (new): The method for producing the composite material vibrator according to claim 26, wherein the curing is performed by heating.

Claim 28 (new): The method for producing the composite material vibrator according to claim 26, wherein the curable resin is an epoxy resin.

Claim 29 (new): The method for producing the composite material vibrator according to claim 26, wherein the silicone compound is included in the resin composition in an amount of about 6 percent by weight to about 60 percent by weight.

Claim 30 (new): The method for producing the composite material vibrator according to claim 26, wherein the silicone compound is a silicone resin powder.

Claim 31 (new): The method for producing the composite material vibrator according to claim 26, wherein the silicone compound is a silicone rubber powder coated with a polyorganosilsesquioxane cured product.

Claim 32 (new): The method for producing the composite material vibrator according to claim 26, wherein the sound velocity in the reflective layer at 5 MHz is

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Page 11 of 13

about 2,600 m/s or less and the damping coefficient of the reflective layer at 5 MHz is about 3.5 dB/mm or less.

Claim 33 (new): The method for producing the composite material vibrator according to claim 26, wherein the vibrating component is a piezoelectric vibrating element.